Towhee and would consequently have been eliminated. By contrast, in the Spotted Towhee, in which the habitat is chiefly brushy, the attached males sing throughout the nesting season. Therefore, in the Spotted Towhee, the utility of territorial song may account for its retention.

It is suggested that in many birds, the degree or manner in which song is used may be correlated with the type of habitat and perhaps with the social organization as well. Thus, other things being equal, birds living in dense habitats tend to have territorial song, while those such as the Brown Towhee, living in relatively open ground, tend to have the song restricted to mate-getting.

With regard to population counts, it becomes clear that in Brown Towhees counting of songs cannot be used as a census method since the use of song is restricted largely if not entirely to unmated males.

The experiments cited herein appear to have an indirect bearing on the problem of homing. The captive birds, which were both supposedly females, had been caught midway between the outdoor cages where they were held for the several weeks of their captivity, and the place of release at Edwards Field. The first towhee released, that one which soon left the field, did not reappear at either its place of origin or at its place of capture, so far as is known. However, the second bird stayed at its place of release. Had it been released at its place of capture, the awakening urge to find a mate would possibly have sent it away from home. It cannot be said therefore, that it had no homing sense or that it had been lost through captivity.

SUMMARY

The introduction of a female at the post of a singing unmated male Brown Towhee led within a very short time to the silencing of the male song, whereas the neighboring unattached male which served as the control male, continued to sing. Since permanently mated males do not sing, it would seem that the male song of the Brown Towhee has as its chief purpose the attraction and securing of a suitable mate.

With regard to the content of the song of Brown Towhees, the use of a finch-like warble as an ending appears to be moderately common, but not invariable. The fact that it does not occur in the songs of some of the birds, however, indicates a tendency toward curtailment and probable eventual loss of the warble.

Remote ancestors of the Brown Towhee may have had a territorial song which continued through the nesting season. The Brown Towhee,,derived from this ancestral stock, filled a habitat niche which was relatively open and in which sight advertisement was sufficient. The territorial function of song therefore has disappeared.

Museum of Vertebrate Zoology, Berkeley, California, August 26, 1937.

FRANK STEPHENS, PIONEER

WITH TWO ILLUSTRATIONS

By LAURENCE M. HUEY

Frank Stephens, who may well be termed one of the few truly pioneer naturalists of the Southwest, was born in Livingston County, New York, April 2, 1849, and he died in his eighty-ninth year at San Diego, California, October 5, 1937. His autobiography, written at the pressing request of the editor, which appeared in The Condor in 1918 (vol. 20, pp. 164-166), reflected his characteristic modesty in the brevity of its treatment of his really full and eventful life up to the date of its publication. The facts it contained will not be repeated here. The purpose of the present article is to

furnish some personal observations based upon nearly thirty years of close association with a man whose type is now virtually extinct, and also to record some information as to his ornithological experiences derived from the bird and mammal collections of the San Diego Society of Natural History.

I first met Stephens when I was in my early teens, and I vividly recall that I was absent from school that day—absent without leave! It was mid-morning on Tuesday, May 26, 1908, when, after a 10-mile tramp, with my dog, I broke through a large mustard thicket into his camp on the Sweetwater River near Bonita in San Diego County. I had learned its whereabouts from William S. Wright, my manual training teacher in the San Diego city schools and also an enthusiastic entomologist, who had frequently spoken to me of Stephens.

I have often pondered over the impression Stephens must have had of that moment of meeting—the sight of a brown-spotted pointer dog and a chubby boy in a hunting coat much too big for him (his father's, in fact), shouldering a large double-barreled shotgun, suddenly framed in the doorway of his tent! If I had any fears of an unpleasant reception, they were dissipated by his cheery "Hello, come in." The invitation was into a wonderland; for scattered about on two tables and a cot were several trays of bird and mammal specimens, the first I had ever seen. He told me that I might handle the dried ones and explained to me the proper way to pick up bird and mammal skins. This friendliness on the part of my newly made acquaintance immediately banished all my restraint and I burst forth with a multitude of questions. Such was my first meeting with this grand man and I recount it as typical of his kindly attitude toward all.

Two days later found us again together, this time in the field in search of the elusive Farallon Rail. Stephens was then collecting for the Museum of Vertebrate Zoology, and since I had been successful in adding several sets of this rare rail to my egg collection, he thought I could be of assistance to him. We had worked the marsh for hours when, by a stroke of good luck, a Farallon Rail flushed by the dog was shot by Stephens at close range with a light load. I had expected a loud report, but it was only a tiny puff of smoke, with a crack hardly louder than that of a small rifle. That was my first introduction to an auxiliary gun barrel. When Stephens published his "Notes on the California Black Rail" (Condor, vol. 11, 1909, pp. 47-49), I was the anonymous "lad" mentioned in the story. It was decided to omit my name because I had no collector's permit. This situation was later remedied by Stephens, who through personal effort helped me to secure a limited permit from the State Fish and Game Commission.

The day of the rail hunt will always be memorable to me; for that afternoon as we rested on the salt marsh I asked him if it was possible for a person to make a living collecting birds and mammals. His reply was affirmative, but he said the monetary returns were small. That was enough for me; he said, "it can be done." The die was cast and Frank Stephens was now my guiding star.

That fall I bought a bicycle and this made it easier for me to visit the Stephenses; for Mrs. Stephens, who was her husband's collaborator in much of his natural history work, proved as interesting to listen to in her fields, conchology and paleontology, as he was in his. It was during these visits that Stephens began telling me occasional stories of his collecting experiences, which I treasured in my memory. One day we were looking at a tray of owls when he picked up a Pigmy Owl. Turning it over he showed me a great hole in the back of the specimen.

"See here," he said, "I shot that bird with a 50 caliber Henry rifle. It was the first Pigmy Owl I had ever seen, and a very dangerous chance I took to get it, too, for the Apaches had raided a ranch next to mine, only five miles away, and we were hurrying

to the shelter of Fort Bayard. In all probability the Indians heard the shot, but they never caught up with us, nor did they attack the fort. No doubt the band of savages was small and was pillaging only isolated ranches where they would murder the rancher and drive off his stock, never attacking organized groups or the U. S. soldiers." Such was the story of the Pigmy Owl, collected with a gun loaded for men, not for birds!

Fig. 31. Frank Stephens, at Cooper Ornithological Club Annual Meeting, San Diego, California, March 30, 1934.

It is now no. 405 in the collection of the San Diego Society of Natural History and was obtained on July 20, 1876, at Fort Bayard, New Mexico. The label bears the notation, "Shot with a rifle."

Again, Stephens related the capture of a large Wild Turkey gobbler, now no. 3 in the collection. It was taken on January 16, 1881. Said he, "I was just leaving my cabin, which was situated about a mile up the canyon west of Galeyville (now known as Paradise) on the east slope of the Chiricahua Mountains, Arizona, to cut a load of wood. There was a light fall of snow on the ground and I had my axe and my rifle.

In that country, in those days, no one ever left his cabin without his rifle. I was only a few rods from the cabin when two large turkeys ran across an opening in the trees just ahead of me. I was a pretty good rifle shot then and I got both of them. Mrs. Stephens, hearing the two reports, thought someone had shot me and came running out of the cabin. The joke was on her though," he continued, with a chuckle, "and as a penalty she carried both of the birds back to the cabin. They were big fellows, too!"

During November, 1908, Stephens camped a couple of weeks on the U. S.-Mexican boundary near Monument No. 258, trapping for the Pacific Pocket Mouse, which was then excessively rare in collections. I had a part-time job, but with my bicycle I was able to ride down to his camp after work and spend several nights with him. This was the first time I had ever seen a field collector at work. I well remember the first line of rat and mouse traps we set together. In laying the line over varied terrain, he explained to me the associational habits of small mammals and birds, how some preferred soft ground, brush, grasses, or tules and some rocky and open ground, dry or moist. The next morning the truth of his statement was well illustrated by the character of the catch.

One day two coyotes had been caught during the night and, as we sat just outside the tent door fleshing the skins, I chanced to look up into the sky and saw a Condor flying over, accompanied by about a score of Turkey Vultures. I pointed it out to him and he told me to put the two coyote carcasses out into the open as quickly as possible, while he secured his rifle. We then hid quietly for an hour under a sumach bush, hoping the Condor might come down, but it was never seen again.

It was while he was at this camp that Stephens taught me to make study skins. When I think of the patience he displayed during those skinning lessons and the mess I made of my first specimens, I marvel at his tolerance. For tolerance is one of many virtues with which broad-hearted Frank Stephens was blessed in abundance.

The following winter, Stephens had a commission to obtain a series of topotypical Large-billed Sparrows. He had spent a couple of afternoons on the San Diegan salt marshes with nominal success and offered me a dime each for a dozen or more of the birds. The deal was on, and I hurried home for my .22. Stephens had given me a box of shot shells that would fit my gun, and I knew of a small salt marsh, within the city limits of San Diego, where numbers of Large-billed Sparrows came to roost each evening. Within half an hour that evening I had fifteen of the sparrows and, after stuffing their beaks with cotton and wrapping them in paper, I rode back to the Stephens residence. I received a dollar and a half for my birds, the easiest money I had ever earned; and the determination of the young collector to follow natural history as a career received considerable impetus. This money was later used by me in partial payment of dues in the Cooper Ornithological Club, in which my name had been proposed by Stephens.

During the next few years we saw much of each other. In 1912 and 1913 we made a number of trips together to Los Coronados Islands in Lower California, famous resort of sea birds. One occasion, in particular, I recall, when during May, 1913, the south island was the gathering place for five southern California ornithologists. A. J. van Rossem and A. Brazier Howell were camping and collecting there, and Frank Stephens and I were spending a week-end with them. On the last day of our stay a fishing boat came chugging into the cove bringing Donald R. Dickey. It was his first meeting with Frank Stephens.

Frank Stephens always loved the desert, in fact his personality seemed always to personify the desert—his simple mien, his resolute determination to complete any task he undertook, his placid disposition, his honest reliability and truthfulness. It is no

wonder that about 1910 he took up a desert claim, in La Puerta Valley in eastern San Diego County. During the next few years he used his spare time to make collections of the various birds and mammals he found about the place. These specimens, like most of those he had taken during his pioneer days, were sold to help provide living expenses. William Brewster, C. Hart Merriam, C. K. Worthen, University of California, and Donald R. Dickey were some of the more notable purchasers. In 1910, however, he donated his main collection of some 2000 birds and mammals to the San Diego Society of Natural History, and upon the foundation of this gift has been built all the Society's subsequent activity in the field of vertebrate research.

A story Stephens once related about a raven collected at La Puerta seems worthy of repeating. He had been showing me some recently acquired skins and doubtless noticed my puzzled expression at his evident satisfaction in the possession of that particular raven. Then he explained: "A pair of Ravens had settled in the valley when I started to plant a few cleared acres and they commenced to forage on my crop. I tried many times to collect them but, after I had fired several shots, they got so wild that approach was impossible. Finally, one late spring day, about noon when the sun was quite warm [it must have been 100 degrees or more, for Stephens never said "warm" until that temperature was reached], I was in my tent resting on my cot when I saw the shadow of a raven drift across the canvas roof. A moment later the wary bird had alighted on the ridgepole. I shot right through the tent roof and got him with my 32 auxiliary!" The point that had so pleased him was the paradox of killing this raven with his lightest collecting gun, after trying all winter and spring to shoot it with his heaviest charge.

Stephens' ranch at La Puerta was destined, in the years that followed, to be the focal point for field adventures of a number of budding young naturalists, and he never failed to foster their enthusiasm either by being a member of their party or by entertaining them if he happened to be there when they arrived.

The close of the Panama-California Exposition at San Diego, which during 1915 and 1916 had celebrated the opening of the Panama Canal, started a new era in the lives of Mr. and Mrs. Stephens. The San Diego Society of Natural History obtained one of the smaller exposition buildings in 1917, and its collections and library were moved into it. An apartment was provided in the building, where Mr. and Mrs. Stephens lived, and they began giving their entire time to the work of developing a public natural history museum for San Diego. Stephens' constant presence about the museum gave the group of youngsters greater opportunity to converse with him and it was during the next five or six years that the largest number felt his influence.

The post-war period brought great activity into the museum; a grant of money was made by Miss Ellen B. Scripps, and the San Diego Society of Natural History's collections and rapidly growing exhibits were in 1920 moved to a larger building nearer the center of Balboa Park. In March, 1923, the writer was employed by the Society. Stephens and I were now both working in the same organization, a happy situation which continued until he retired in 1934, with the title of Curator Emeritus, at the age of 85.

In the last ten years, we have been companions on three trips into northern Lower California, Mexico, one to San Felipe, on the Gulf of California, one into the Sierra Juarez, and one to Punta Banda, just south of Ensenada. The month we spent in the Sierra Juárez was the longest single period we had ever spent together afield, and in spite of his being 79 years of age he could trap mammals and skin during the daylight hours; but the years had dimmed his sight and he naturally tired more easily than the younger members of the party, so he was content to stoke the camp fire during the evening sessions of the work. While we made up skins he often related tales of his early days.

As a camp companion I believe Frank Stephens never had a superior; there was always a cheery word and a willing hand for any task great or small. His tricks of camp-lore seemed inexhaustible. If there was a simpler means or a short cut to any outdoor work, or a way to do a better job, Frank Stephens knew it. These things he had learned from his pioneering experiences, from a long life of contact with his fellow man, and from matching his wits against the wiles of nature.

As evidence of the high regard in which Stephens was held by his fellow scientists, we know that at least fourteen new species or subspecies were named in his honor, three birds, six mammals, one reptile, one plant, two insects, and one mollusk. He joined the American Ornithologists' Union as an associate in 1883 and was honored by membership in 1901. He joined the Cooper Ornithological Club in 1894 and was made an honorary member in 1912. He was designated a Fellow of the American Association for the Advancement of Science in 1926, and prior to 1923 was elected both a Patron and a Fellow of the San Diego Society of Natural History. He was a charter member of the Zoological Society of San Diego and was one of the five founders of San Diego's now famous zoo. He was also a member of the Biological Society of Washington and a charter member of the American Society of Mammalogists.

As nearly as I have been able to determine from the literature, Stephens was the collector of the types of 45 animals—14 birds, 26 mammals and 5 insects. The birds, with some of the data, are listed herewith.

BIRD TYPES COLLECTED BY FRANK STEPHENS

Name	Year	Locality	Describer	Reference
Polioptila melanura californica	1878	Riverside, Calif.	Brewster	Bull. Nutt. Orn. Club, 1881
Phainopepla nitens lepida	1878	Riverside, Calif.	Van Tyne	Occas. Papers, Boston Soc. Nat. Hist., 1925
Vireo vicinior californicus	1878–80?	Riverside, Calif.	Stephens	Auk, 1900
Callipepla squamata pallida	1880	Rio San Pedro, Ariz.	Brewster	Bull. Nutt. Orn. Club, 1881
Antrostomus vociferus arizonae	1880	Chiricahua Mts., Ariz.	Brewster	Bull. Nutt. Orn. Club, 1881
Vireo huttoni stephensi	1881	Chiricahua Mts., Ariz.	Brewster	Bull. Nutt. Orn. Club, 1882
Penthestes sclateri eidos	1881	Chiricahua Mts., Ariz.	Peters	Proc. New England Zool. Club, 1927
Sialia sialis fulva	1884	Santa Rita Mts., Ariz.	Brewster	Auk, 1885
Colinus ridgwayi	1884	Sasabe, Sonora, Mex.	Brewster	Auk, 1885
Rallus obsoletus levipes	1886	Orange Co., Calif.	Bangs	Proc. New England Zool. Club, 1899
Callipepla gambeli deserticola	1890	Riverside Co., Calif.	Stephens	Auk, 1895
Speotyto cunicularia obscura	1894	Lake Co., Calif.	Stephens	Auk, 1895
Buteo borealis alascensis	1907	Glacier Bay, Alaska	Grinnell	Univ. Calif. Publ. Zool., 1909
Lagopus lagopus alexandrae	1907	Baranof Is., Alaska	Grinnell	Univ. Calif. Publ. Zool., 1909

The localities above, and those attached to his mammal types, give indication of the more important trips Stephens made during the most active part of his life, and the catalogue of the collection he presented to the San Diego Society of Natural History

throws still additional light on his travels. A pair of prairie chickens taken by Frank Stephens at Russell, Kansas, during March, 1871, are the earliest of his dated specimens in the collection, and no doubt were among the first birds he prepared as study skins. His subsequent migration westward to Campo, San Diego County, California, during the years 1875–1876 is well marked by specimens collected along the way.

During the twenty-five years following, Stephens made numerous trips into the western parts of the Colorado Desert, and many specimens mark his routes. Some of the localities, such as Pelican Lake, Duck Lake and Cameron Lake, have been so completely changed by human occupation that the specimens he secured there are now historic. An occasional specimen stands out as worthy of mention. For instance, a California Cuckoo (*Coccyzus americanus occidentalis*) taken at Fort Bayard, New Mexico, June 25, 1876, probably represents the first specimen of this species ever collected in New Mexico; and a pair of Blue-winged Teal (*Querquedula discors*) taken at Palm Springs, then known as Agua Caliente, Riverside County, California, on March 10, 1886, is still an exceptional record, as is also a female specimen of American Golden-eye taken at Black Mountain, northeastern Lower California, Mexico, on December 4, 1896.

There are three trips represented by specimens in the collection that were to points distant from southern California and that were not mentioned by Stephens in his writings. One of these was to western Washington in January, 1884, when a few specimens were secured, the most important of which are two Bob-white Quail taken on Whidby Island in Puget Sound. A note in the catalogue states: "These birds were introduced on the island and the two specimens are the third or fourth generation." If bob-whites from this same stock are still extant on Whidby Island, this pair might afford interest in comparison with some recently taken birds.

He returned to visit his old home in the central states during the late summer and fall of 1887, and on his way east stopped off at Flagstaff, Arizona, where he made a small collection from the vicinity of San Francisco Mountain. A number of specimens in the collection were taken on this trip in Iowa, Illinois, Missouri and Kansas, during the months of August, September and October, 1887.

The most important trip ever made by Frank Stephens on his own account was primarily in the interest of his book on California Mammals, which was published in 1906 after many years of preparation. He had engaged the services of William J. Fenn, an artist, to draw illustrations for the work, and he and Fenn started together from Witch Creek, San Diego County, California, in February, 1894, using a light wagon drawn by two horses. The route of the journey was up the coast to the San Francisco Bay region, thence north into Mendocino County. Turning eastward, they crossed the Sacramento Valley at Colusa and followed a route from Oroville to Buck's Ranch, then went over the Sierra Nevada to Susanville. From this point they traveled northward to Goose Lake and the Warner Mountains, in the extreme northeastern part of California. This was the apex of the trip and was reached during late July. The return journey was made along the eastern slopes of the Sierra Nevada until the vicinity of Walker Pass was reached. Here they turned westward and crossed the Sierra again, entering the extreme southern part of the San Joaquin Valley. The last leg of the trip was made via old Fort Tejon and the western arm of the Mohave Desert, the travelers remaining on the desert slope of the mountains until Cajon Pass was reached. They then continued south by way of Elsinore and Warner's Valley to Witch Creek, where they arrived during the first part of November. Stephens often told me of his experiences on this trip, and years later I followed his trail from Oroville to the Warner Mountains, camping in places he had designated as good collecting spots.

One feature of this long trip was the presence of a pet cat belonging to Fenn, a subject Stephens never failed to mention when talking about this journey. It seems that this cat was the cherished possession of his friend and he would not part with it in spite

Fig. 32. Frank Stephens (at right), and A. W. Anthony tossing flapjack, in camp near Jolon, Monterey County, California, October 24, 1929.

of the fact that it was of no use on a collecting trip. "The critter was into everything," said Stephens, "but only once did it catch me unaware of its presence. It had just finished eating the body off of the only Three-toed Woodpecker I took on the trip, when I caught it. My only regret was that I hadn't poisoned the skin sufficiently to prove fatal to the cat!" The head of this bird is still in the collection.

Stephens was not a prolific writer, any more than he was a highly technical taxonomist. His forte was as an out-of-door naturalist, with a versatility that was amazing. Nevertheless I have been able to find fifty-five published items from his pen, and there may be more that have escaped my search. This list is appended.

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San Diego Society of Natural History, San Diego, California, February 24, 1938.

THE WHITE-THROATED SPARROW IN WESTERN NORTH AMERICA

WITH ONE ILLUSTRATION

By MARGARET W. WYTHE

From time to time various birds whose regular distribution is east of the Rocky Mountain divide are observed as so-called accidental stragglers far out of their normal range. Of such birds, the White-throated Sparrow (*Zonotrichia albicollis*) in western North America, and more particularly in California in increasing numbers, provides suggestive evidence bearing on the problem of distribution.

For the present study, in addition to published records and accounts of *Zonotrichia albicollis*, information has been received through correspondence. Especially helpful is that for Nebraska, furnished by Prof. Myron H. Swenk. Acknowledgment is due also to certain persons for permitting me to use the following records which otherwise would have been published by themselves: Mr. C. I. Clay, record of a bird taken at Eureka, Humboldt Co., Calif., November 29, 1934; the late Mrs. Harriet N. Blake, of a banded bird, no. 34–16915, at Berkeley, Alameda Co., Calif., December 1, 1935; Mr. D. E. Danby, of a bird banded by Mrs. L. B. Payne, no. 34–93660, at Santa Cruz, Santa Cruz Co., Calif., January 24, 1936; and Mrs. Otis S. Smith, of banded birds, nos. A-182000 and F-119333, at San Anselmo, Marin Co., Calif., from 1933 to 1935. Mr. L. Morgan Boyers furnished data pertaining to three California-taken specimens now in the Natural History Museum, Stanford University.